SC'11 Scientific Visualization

High Velocity Aluminum Ball Collision

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ABSTRACT

The animation shows a simulation of an aluminum ball smashing into an aluminum brick at very high velocity. The simulation data was generated on Sandia National Lab's Red Storm Supercomputer. ParaView was used to export polygonal data, which was then textured and rendered using a commercial 3d rendering package.

Using ParaView's co-processing capability, data was captured directly from the memory of the running super computer simulation. We then created a set of seamless fragment surfaces extracted from the underlying cells' material volume fractions. ParaView outputs a sequence of models that are converted to LightWave polygonal object, using NuGraf, a model format conversion program. The objects vary in size, with some objects consisting of close to a billion polygons. Custom software and scripts are used to surface the sequence of objects. The final object sequence is then rendered offline with LightWave 10.0.

Categories and Subject Descriptors

I.3.7 Three-Dimensional Graphics and Realism: Color, shading, shadowing, and texture.

General Terms

Experimentation

Keywords

3d, animation, photo real, simulation, paraview

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